

Rabies Control Requirements

Overview

- Rabies virus
- Types of exposures/transmission
- Animal rabies
- Reporting
- Exposure assessment
- Management of animals causing exposure
- Management of animals exposed to rabies

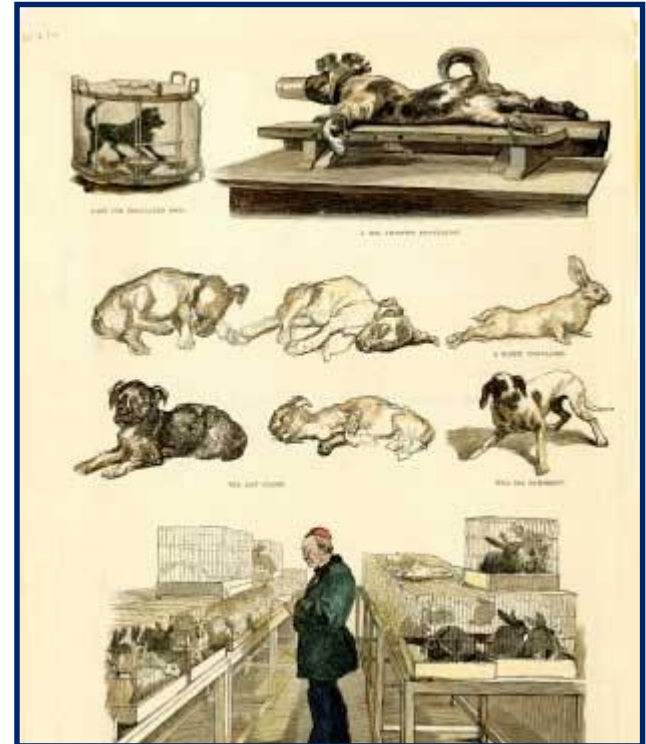
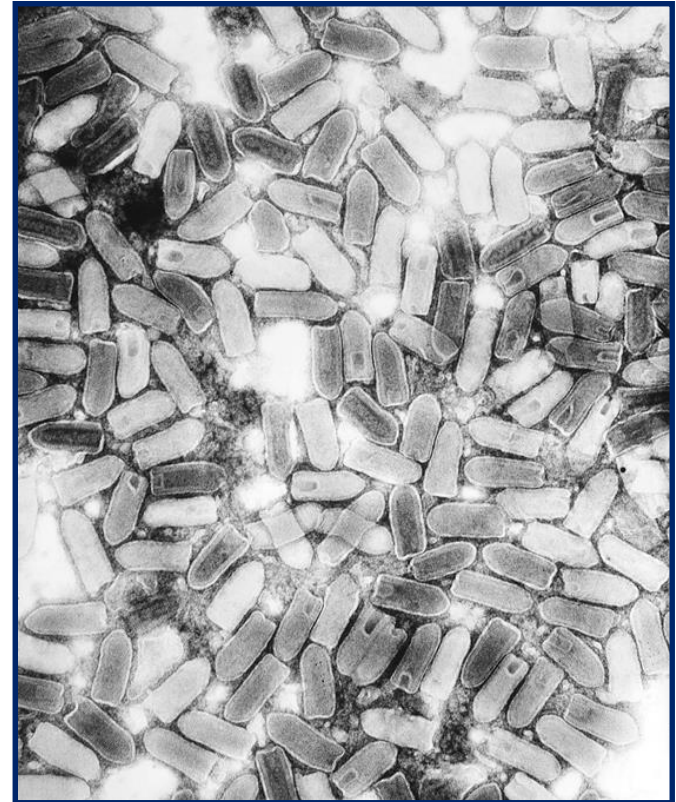


Photo: US National Library of Medicine

Rabies Virus

- Any mammal can be infected
 - Animals that have fur, bear live young, produce milk
- **Virus only found in saliva and neural tissue**
- Does not survive long in the environment
 - Inactivated by drying, sunlight, disinfectant

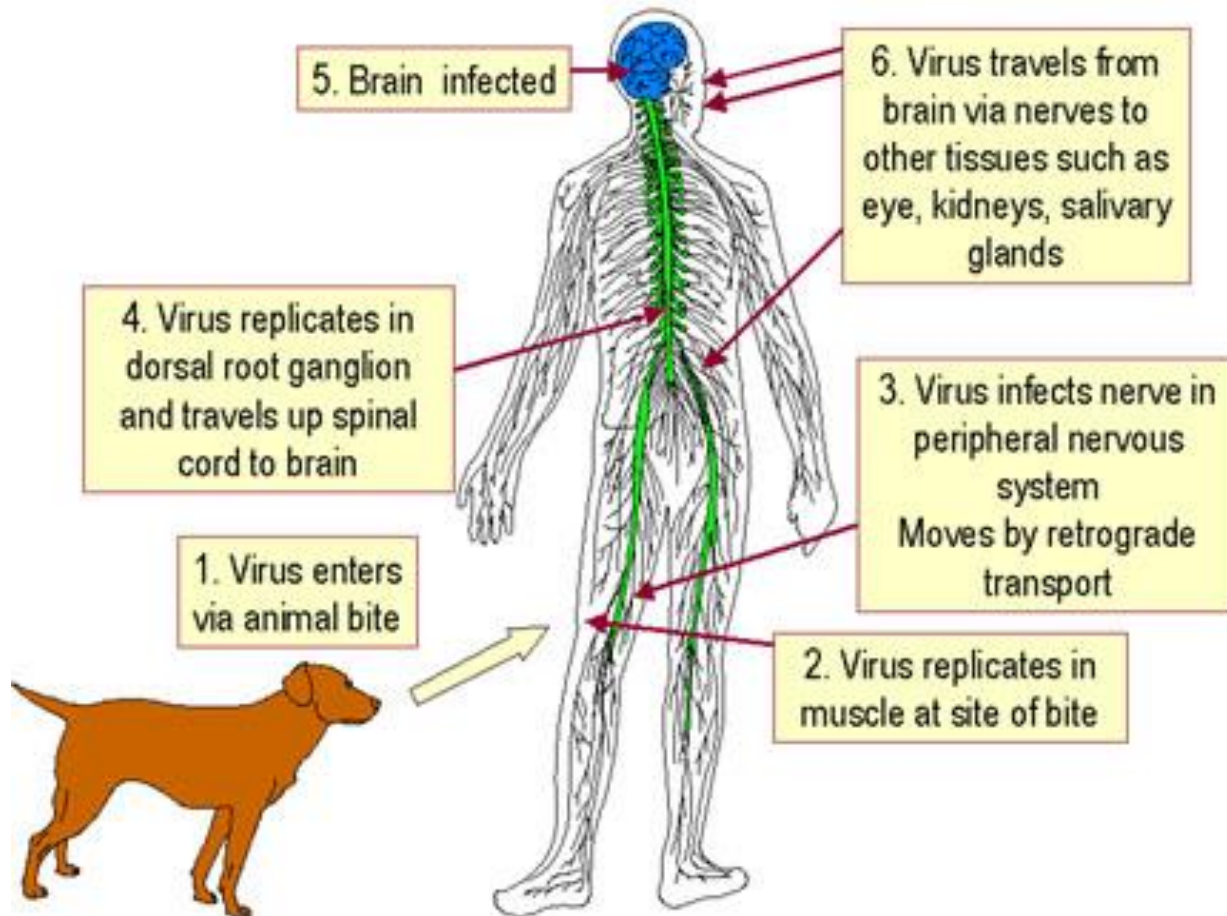


Types of Exposure

- Bite
 - Any penetration of skin by teeth
- Non-bite
 - Open wound
 - Mucous membranes
 - Corneal and organ transplant
 - Scratch?



Transmission



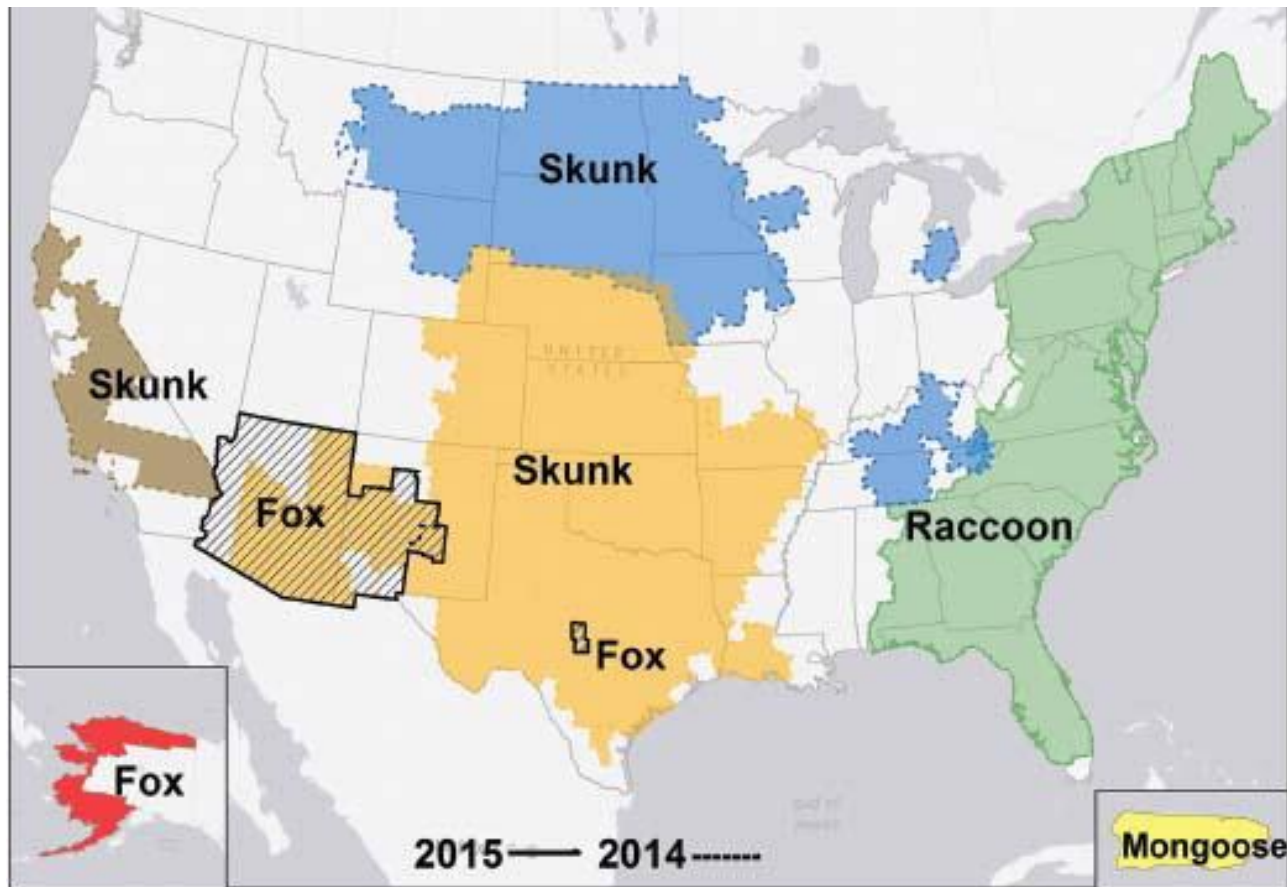
1) Virus in saliva. 2-4) Incubation period variable, depends on location of bite. Victim asymptomatic. PEP will prevent disease. 5) Encephalitis, symptomatic. 6) Victim infectious. Virus shed 10 days prior to symptom onset.

Rabies in Animals

- Any mammal can become infected
 - 3-12 week incubation period (highly variable)
- Initial signs non-specific
 - Restlessness, G.I. signs, lameness
- Encephalitic (furious)
 - Aggressive
- Paralytic (dumb)
 - Wild animals appear tame
- Rapid progression of signs
 - Cannot swallow (foaming at mouth)
 - Cannot breathe
 - Death within 3-5 days of onset



Terrestrial Rabies Reservoirs, U.S. – 2015



Distribution of major rabies virus variants among mesocarnivores in the U.S. and Puerto Rico, 2008-2014. Black diagonal lines represent fox rabies variants (Arizona gray fox and Texas gray fox). Solid borders represent 5-year rabies virus variant aggregates for 2010 through 2015; dashed borders represent the previous 5-year aggregates for 2009 through 2014. Map courtesy CDC.

Animal Rabies, Kansas – 2017

N = 40

75% Wildlife

26 (87%), skunks



4 (13%), bats



Animal Rabies, Kansas – 2017

N = 40

25% Domestic Animals

3 (30%), cows



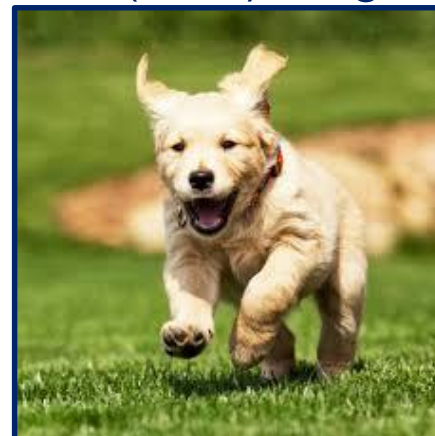
3 (30%), cats



3 (30%), horses



1 (10%), dog



Animal Vaccination

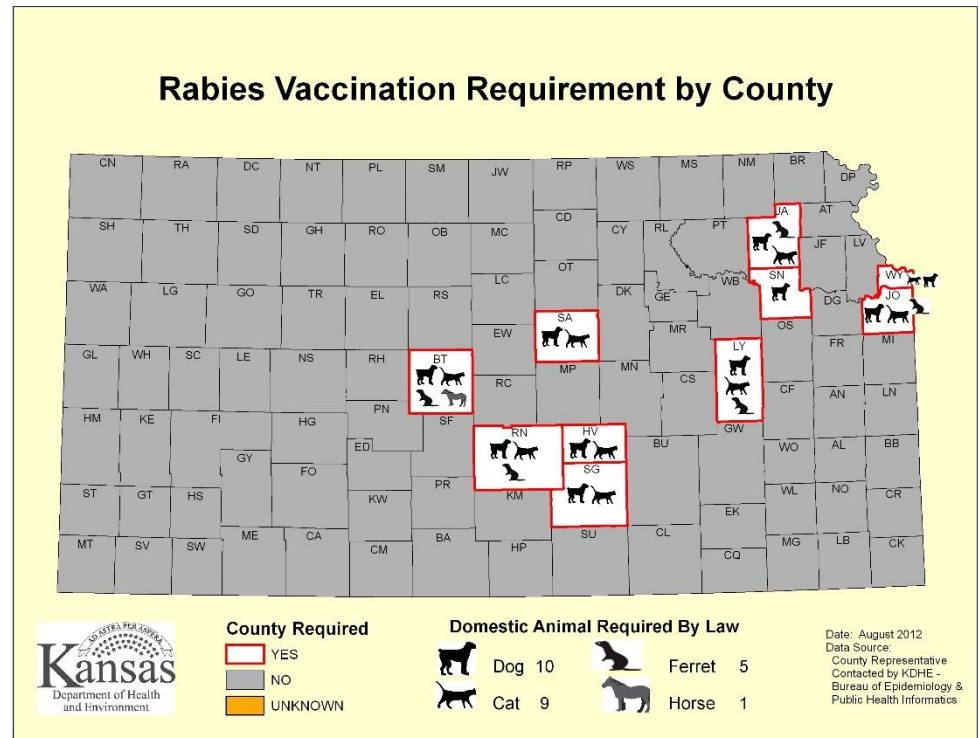
- Vaccination of domestic animals provide a buffer between wildlife and people
- Licensed rabies vaccine
 - Dogs, cats, ferrets, horses, cattle, sheep
 - Must be given by veterinarian or under direct supervision of vet
 - Should be given according to label



**I  ALL MY
ANIMALS AGAINST
RABIES**

Rabies Vaccination Laws, Kansas

- No statewide law
- 10 counties with rabies vaccination laws
- Vaccination ordinance by municipality
 - 637 municipalities
 - 194 require dogs to be vaccinated
 - 184 require cats to be vaccinated



Rabies is Reportable!

- Phone call required within **4 hours** of a **person** (suspected) with rabies
- Notification required within **24 hours** of an **animal** (suspected) with rabies
- Kansas State University Rabies Laboratory sends results to KDHE electronically



Epihotline
877-427-7317



KANSAS STATE UNIVERSITY		RABIES DIAGNOSTIC REQUEST	
Submitting State: <input type="checkbox"/> Kansas <input type="checkbox"/> Nebraska <input type="checkbox"/> Other		Laboratory Use Only: Lab No. _____ <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Unsuitable <input type="checkbox"/> Indeterminate Signature/Date _____	
Submit to: Attn: Rabies Laboratory KSU Veterinary Diagnostic Laboratory 1800 N. Donison Avenue Manhattan, KS 66506-5601 Phone: (785) 532-4483			
SPECIMEN SUBMITTED BY			
Clinic/Agency _____		Contact _____	
Address _____		Phone # _____	
City/State/Zip _____		Fax # _____	
Do you request a faxed copy of results? <input type="checkbox"/> No <input type="checkbox"/> Yes			
SPECIMEN HISTORY			
Kind of Animal _____	Breed/Species _____	Age (approx.) _____	Color/Description _____
Animal Location: Town _____ County _____		Specific Location _____	
Submitted animal's vaccination status: <input type="checkbox"/> Current <input type="checkbox"/> Unvaccinated <input type="checkbox"/> Not Current <input type="checkbox"/> Unknown			
Was the animal sick or acting strangely? <input type="checkbox"/> No <input type="checkbox"/> Yes			
Signs of Rabies: <input type="checkbox"/> neurological disorder <input type="checkbox"/> paralysis <input type="checkbox"/> difficulty swallowing <input type="checkbox"/> drooling <input type="checkbox"/> aggression			
Other, describe: _____			
Date of death: _____		Manner of death: _____	
Date Submitted: _____			
Owner/complainant name _____		Phone # _____	
Address _____		City _____ State/ZIP _____	
EXPOSURE HISTORY			
Has the animal bitten any person? <input type="checkbox"/> No <input type="checkbox"/> Yes Name: _____ Date: _____			
If yes, please give details of incident: _____			
Was this animal in contact with a pet or domestic animal? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes: Date: _____			
If yes: Species: _____ Vaccination status: <input type="checkbox"/> Current <input type="checkbox"/> Unvaccinated <input type="checkbox"/> Not Current <input type="checkbox"/> Unknown			
If yes to any of the above: Name/Owner _____			
Address _____			
Telephone _____			
Form 010			

Rabies Investigation

- LHD performs the investigation
 - Conducts exposure assessment
 - Species causing exposure
 - Type of exposure
 - Location of exposure
 - Vaccination status
 - Normal vs abnormal behavior
 - Makes PEP recommendations



Species Causing Rabies Exposure

Higher / More Likely

- Bat
- Cat
- Coyote
- Dog
- Ferret
- Fox
- Horse
- Large rodents (muskrat, beaver)
- Livestock
- Other carnivores
- Raccoon
- Skunk

Lower / Less Likely

- Rabbits/hares
- Chipmunks
- Squirrels
- Pet rats, hamsters, gerbils
- Other small rodents
- Opossum

Unless animal
behaving
abnormally /
neurologic

Location of Exposure

- Face
 - High risk (short distance for virus to travel to the brain)
 - Rabies PEP may be started immediately



Vaccination Status of Animal

- Currently vaccinated
 - Low risk of rabies
- Out-of-date, but previously vaccinated
 - Low risk of rabies
- Unknown or never vaccinated
 - Higher risk of rabies



Normal or Abnormal Behavior

Dogs Don't Bite "Out of the Blue."

Many bites can be prevented if people learn to read a dog's body language.



This dog's whole body is wagging calmly and he is panting. He is happy to see you.



He is not yawning because he is tired. He is anxious and he hopes you will leave him alone.



Her tail is high, her body is stiff and her mouth is closed. "I'm warning you. Back off!"



A tail tucked in, even if wagging a bit, means a very worried dog. "Please stay away from me."



The tongue flick and the slow, stiff tail wag tell you this dog is very unsure. "Go away."



This dog is turning her head away in order to avoid conflict. She doesn't want to be bothered.



The half-moon eye and the closed mouth tell you this dog is uncomfortable. "Leave me alone!"



The "freeze and stare" is a very dangerous sign! This dog will bite if you persist.



For more information about dog bite prevention, visit www.doggonesafe.com.



Rabies Control Requirements

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October 19, 2017

Kansas Department of Health and Environment
Division of Public Health
Bureau of Epidemiology and Public Health Informatics
Curtis State Office Building
Topeka, KS 66612

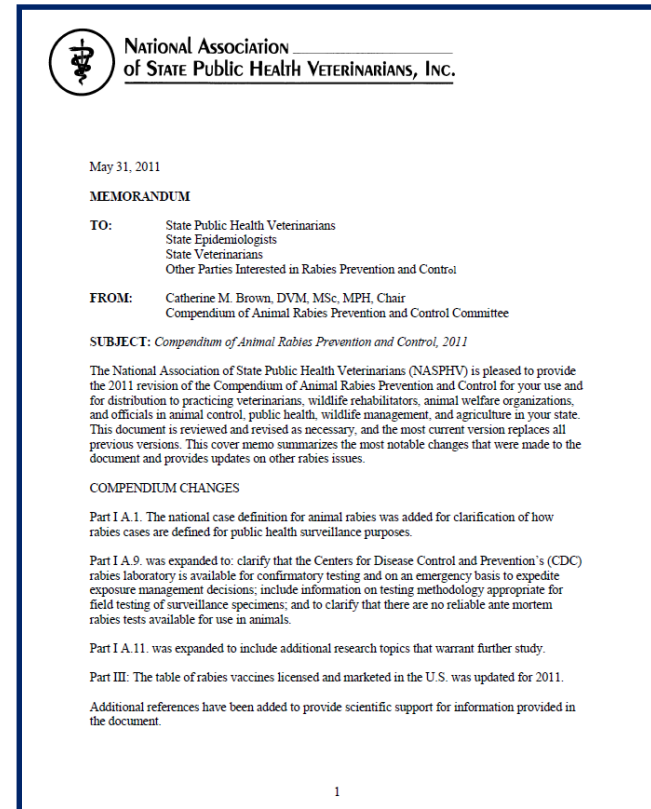
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Compendium of Animal Rabies Prevention and Control

- Maintained by the National Association of State Public Health Veterinarians (NASPHV)
- First document published in 1971 by CDC, NASPHV took over in 1975
- Last updated in 2011
- Significant changes made to recommendations of animals exposed to rabies (March 2016) due to results of KSU study in addition to Texas study



KSU Rabies Laboratory



- Study compared antibody response of dogs and cats with a current vaccination to those that were out-of-date after being exposed to rabies
- Results indicated dogs and cats with an out-of-date rabies vaccination have similar antibody response to rabies booster when compared to dogs and cats with current vaccine

<http://avmajournals.avma.org/doi/pdf/10.2460/javma.246.2.205>

MANAGEMENT OF ANIMALS CAUSING EXPOSURE

Our Mission: To protect and improve the health and environment of all Kansans.

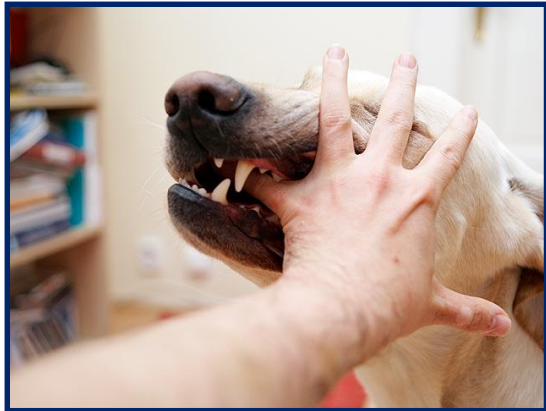
Bites

- 10 day observation
 - Owned dog, cat, ferret, horse, cow, sheep
- Euthanasia and test
 - Stray or unclaimed dog, cat, ferret
 - Wildlife
- Case-by-case basis
 - Hybrid and exotic animals
 - Zoo animals

Non-bites

- Case-by-case basis
 - All animals

10 Day Observation Period



- Can usually wait to administer rabies PEP
- Do **not** vaccinate the animal during observation
- Location determined by secretary or LHO
- If animal develops signs of rabies, euthanize and test
- If alive at day 10 it does not have rabies
- If not current, **vaccinate** animal at **end** of observation

Observation



- Monitoring of an animal for any changes in behavior consistent with rabies infection
- Location of observation determined by secretary or local health officer
 - Owner's residence
 - Veterinary premises
 - Pound or shelter

SCENARIOS - Animals causing exposure

12-year-old owned dog bites person

- Indoor residential dog
- Vaccinated throughout life
- Provoked bite



10-day observation not recommended

5-year-old owned dog bites person

- Outdoor country dog
- Vaccinated 1 time
- Unprovoked bite
- Abnormal behavior



10-day observation recommended

SCENARIOS - Animals causing exposure

Stray cat bites person

- Unknown vaccination history
- Unknown behavior
- Provoked bite



Euthanasia and rabies testing recommended

Owned cat bites person

- Indoor/outdoor cat
- Never vaccinated
- Provoked bite



10-day observation recommended

MANAGEMENT OF ANIMALS EXPOSED TO RABIES

Currently Vaccinated Animals

- Dog, cat, ferret, horse, cow, sheep
 - Appropriate documentation (e.g., rabies certificate)
 - Immediately booster and **observe** for **45 days**
- “Current” vaccine
 - Must be given at least 28 days prior to exposure if initial vaccination
 - Booster vaccinations administered in accordance with compendium vaccine schedule

RABIES VACCINATION CERTIFICATE					
Type or Print (use ball point pen) Owner's Name and Address					RABIES TAG NUMBER
PRINT last		First		Middle Initial	Phone
No.		Street		City	Zip
SPECIES: Dog <input type="checkbox"/> Cat <input type="checkbox"/>	SEX: Male <input type="checkbox"/> Female <input type="checkbox"/> Neutered <input type="checkbox"/>	AGE: 3 mo–12 Mo <input type="checkbox"/> 12 Mo or older <input type="checkbox"/>	SIZE: Under 20 Lb <input type="checkbox"/> 20–50 lb <input type="checkbox"/> Over 50 lb <input type="checkbox"/>	Predominant Breed	Colors:
Microchip <input type="checkbox"/> Tattoo <input type="checkbox"/> Number:				Name:	
DATE VACCINATED Month _____ Day _____ 20____		Producer: (first 3 letters) <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>		Veterinarian's #:	
VACCINATION EXPIRES Month _____ Day _____ 20____		ROUTE <input type="checkbox"/> M <input type="checkbox"/> 1 yr Lic/Vacc. <input type="checkbox"/> SQ <input type="checkbox"/> 3 yr Lic/Vacc.		Veterinarian's Signature:	
		Vacc. Serial (lot) No. _____		Address:	

Out-of-Date Dogs and Cats, but Previously Vaccinated

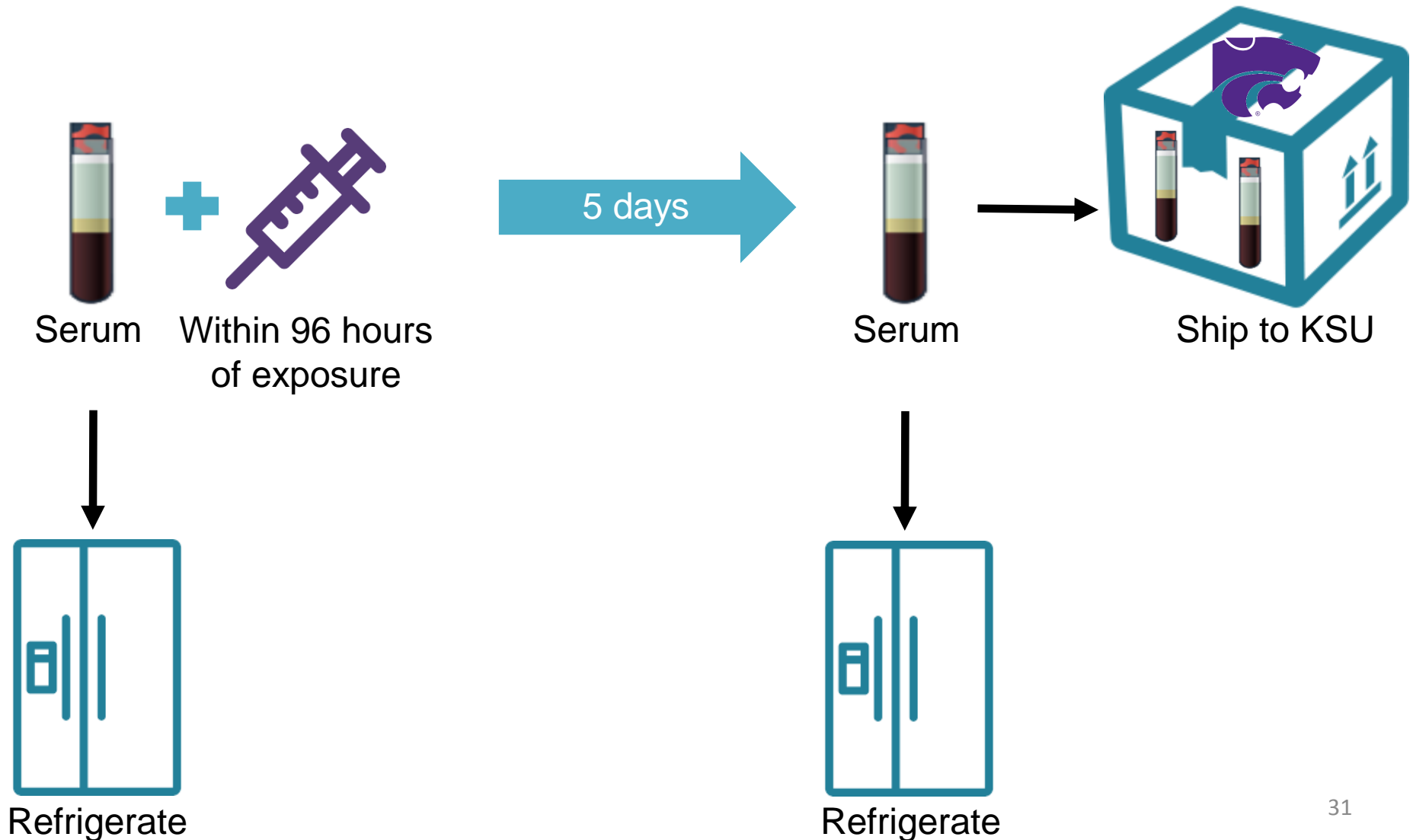
- With appropriate documentation
 - Immediately booster and **observe** for **45 days**
 - If booster is delayed, observation period may be increased
 - Without appropriate documentation
 - Prospective serologic monitoring
- OR**
- Treat as unvaccinated

Observation



- Monitoring of an animal for any changes in behavior consistent with rabies infection
- Location of observation determined by secretary or local health officer
 - Owner's residence
 - Veterinary premises
 - Pound or shelter

Prospective Serologic Monitoring



Prospective Serologic Monitoring



Quarantine until test results available



Observe for 45 days



Quarantine for 4 months

Unvaccinated Dogs and Cats

- **Quarantine for 4 months**
 - Vaccinate at time of entry into quarantine
 - If vaccination occurs >96 hours following exposure, quarantine period may be increased to 6 months
 - KSU protocol recommended for naïve animals
 - Administer 3 vaccines – day 0, 7, 21-28

OR

- Euthanize

Quarantine



- Physical confinement of animal during a specified time period when animal is monitored for development of disease
 - Prevent contact with other animals
 - Limit human contact to as few caretakers as possible
- Location of quarantine determined by secretary or local health officer
 - Owner's residence
 - Veterinary premises
 - Pound or shelter

Out-of-Date Ferrets, Horses, Cattle, and Sheep

- With appropriate documentation
 - Case-by-case basis
 - Booster vaccination and **observe** for **45 days** OR
 - **Quarantine** for **6 months** OR
 - Euthanasia
- Without appropriate documentation
 - **Quarantine** for **6 months** OR
 - Euthanize

Unvaccinated Ferrets, Horses, Cattle, and Sheep

- **Quarantine** for **6 months**
 - Vaccinate at time of entry into quarantine

OR

- Euthanize

Other Animals

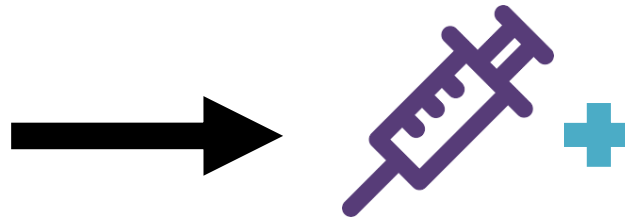
- Livestock other than cow or sheep
 - Quarantine for 6 months **OR**
 - Euthanize
- Hybrid and exotic animals
 - Case-by-case basis
- Zoo and research animals
 - Case-by-case basis



SCENARIOS – Exposed Animals

3-year-old dog in pen with skunk that was never tested for rabies

- Overdue for vaccine, but vaccinated 1 time in entire life
- Has documentation of vaccination



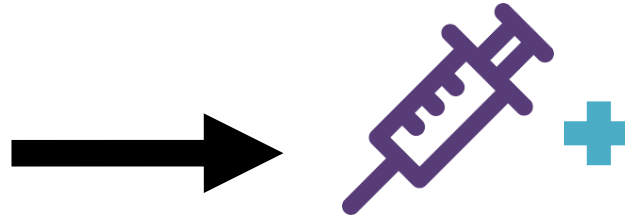
Booster within 96 hours



Observe for 45 days

6-month-old puppy in pen with positive skunk

- Vaccinated 14 days ago with 1st vaccine
- Has documentation of vaccination



Booster within 96 hours



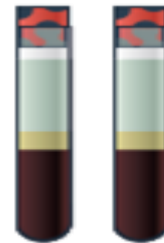
Quarantine for 4 months

OR euthanize

SCENARIOS – Exposed Animals

2-year-old cat chewed on bat that was never tested for rabies

- Bought off Craigslist
- Verbally informed UTD
- No documentation of rabies vaccine



Prospective
serologic
monitoring



OR euthanize



Quarantine for 4 months

OR



Observe for 45 days

Cow bit by positive skunk

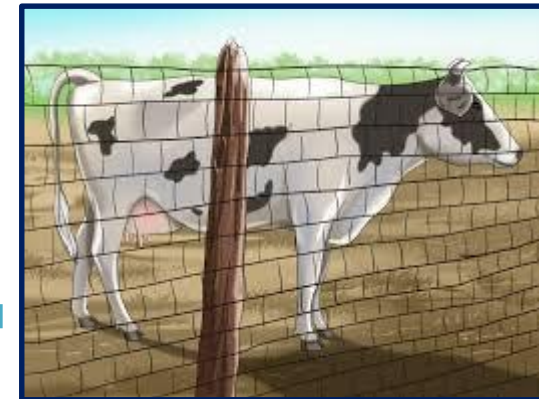
- Never vaccinated



Vaccinate within
96 hours



OR euthanize



Quarantine for
6 months

SCENARIOS – Exposed Animals

Dog with nursing puppies in pen with positive skunk

- Mom dog UTD with documentation
- Puppies too young to be vaccinated



Mom dog



Booster within
96 hours

Observe for
45 days

Puppies



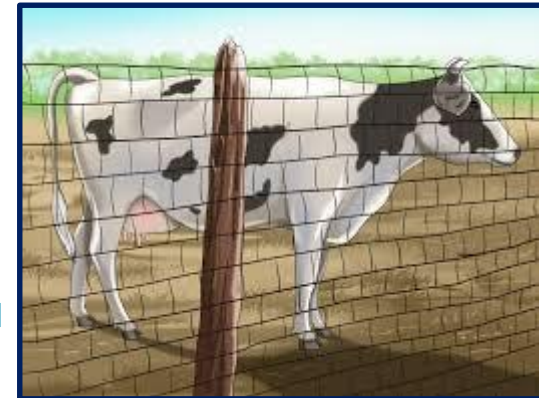
Booster within
96 hours

KSU protocol + **quarantine**
separately for **4 months**

OR euthanize

Nursing calf of positive cow

- Calf never been vaccinated

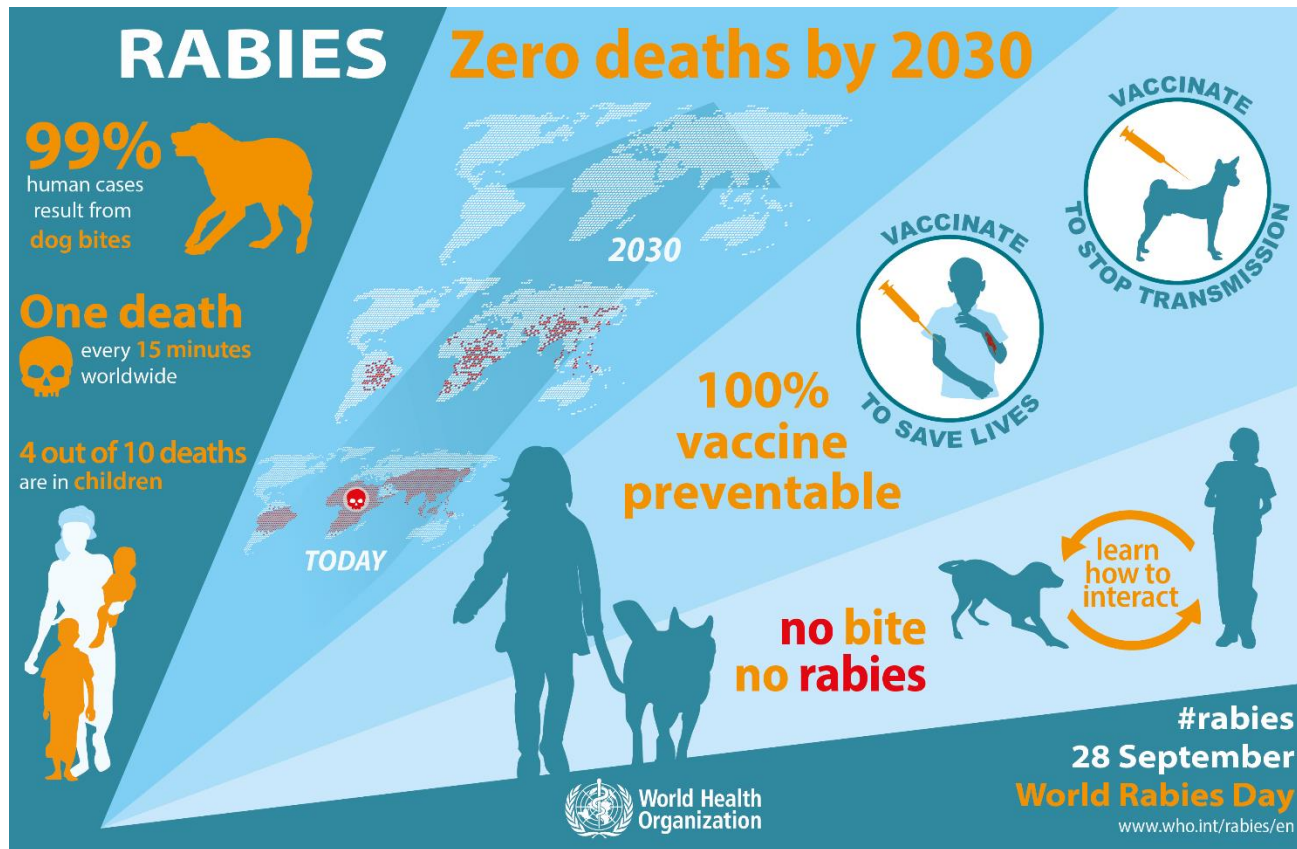


Vaccinate within
96 hours

Quarantine for
6 months

OR euthanize

Questions?



Resources

- KDHE Rabies Disease Investigation Guideline
 - http://www.kdheks.gov/epi/disease_investigation_guidelines.htm
- Human Rabies Prevention (ACIP)
 - <http://www.cdc.gov/mmwr/PDF/rr/rr5703.pdf>
- KSU Rabies Laboratory
 - <http://www.vet.k-state.edu/depts/dmp/service/rabies/>
- Centers for Disease Control and Prevention
 - <http://www.cdc.gov/rabies/>
- Compendium of Animal Rabies Prevention and Control
 - <http://avmajournals.avma.org/doi/abs/10.2460/javma.248.5.505>
- **KDHE Epi Hotline: 1-877-427-7317**



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